Radiocrafts
Embedded Wireless Solutions

MBUS-DEMO

MBUS-DEMO User Manual

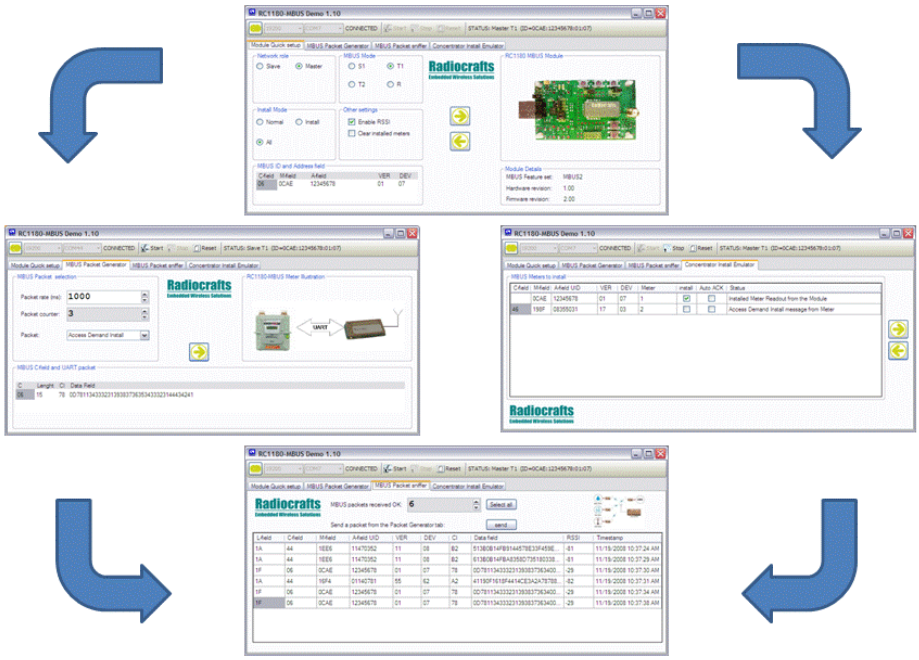

Table of Contents

TABLE OF CONTENTS 1
INSTALLATION GUIDE 2
SCREEN SETTINGS 2
INTRODUCTION 3
CONNECTING TO THE MODULE 3
MODULE QUICK SETUP TAB 4
MBUS PACKET GENERATOR TAB 5
MBUS PACKET SNIFFER TAB 6
CONCENTRATOR INSTALL EMULATOR TAB 7
DOCUMENT REVISION HISTORY 8
DISCLAIMER 8
TRADEMARKS 8
LIFE SUPPORT POLICY 8
CONTACT INFORMATION 8

Installation Guide

The MBUS-DEMO is a part of Radiocrafts' RCTools PC suite tailored for use with Radiocrafts' RF Modules. For full installation procedure please read the RCTools Installation Guide available at www.radiocrafts.com.

The MBUS-DEMO requires access to the modules UART via an available COM-port.
Typically the UART-access is obtained via an UART-to-RS232 or UART-to-USB converter.
The Demo Boards (DB) from Radiocrafts contain an on-board level shifter for direct plug-in to a PC and further access to the related COM-port.

Screen Settings

It is recommended to run the application with screen size at least 1024x768 and font resolution 96dpi.

Introduction

MBUS-DEMO, is designed to demonstrate a Wireless M-Bus system using the RC1180-MBUS module development kit. The program provides Module Quick setup, MBUS Packet generator, MBUS Packet Sniffer and an Installation tool for the MBUS2 feature set. A RC1180-MBUS2 Demo Board is needed for this demo to operate properly.

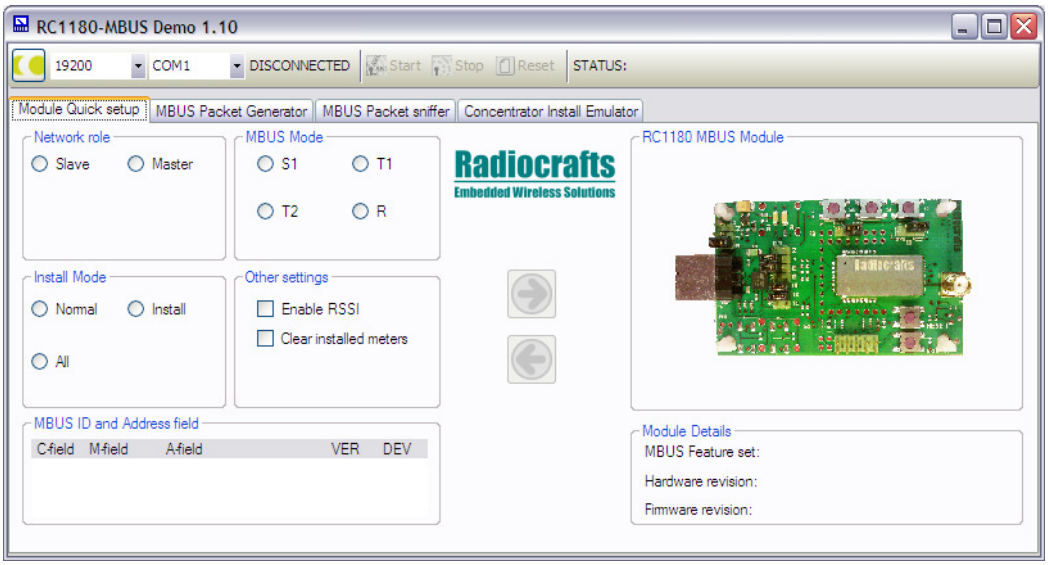

Figure 1. Main window

Start the program, and the MBUS-DEMO main window should look similar to what is shown in Figure 1.

Connecting to the Module

Before connecting, select the proper settings for your serial port:

- name of an available communication port (COMx)
- baud rate used to communicate with the module

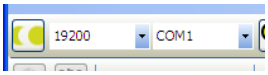

Figure 2. Port settings

To connect to the module you need to press the **connect** button. If your COM port is not listed you can also manually type in the COM port to use.

Figure 3. Connect button

A warning message will pop-up if you try to connect to a port that is already in use. This is illustrated in figure 4.

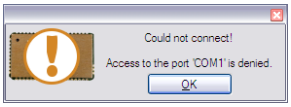

Figure 4. COM port conflict message

Module Quick Setup Tab

The Module Quick setup Tab allows you to read back and configure basic MBUS configuration parameters on the connected Demo Board. The input entry selections and status information will be updated when you read the configuration from the module. A read-back from the module should be the first thing to do after connect to the COM port. Some of the input entries are not valid for all MBUS feature set, and they will be greyed out based on the read back information.

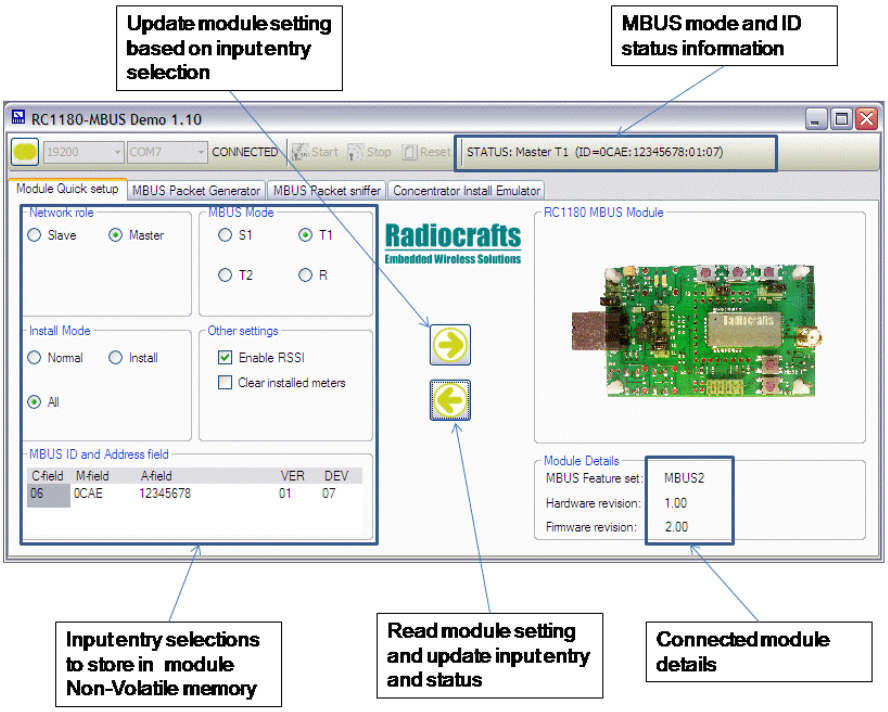

Figure 5. Module Quick Setup

Step-by-step guide for Module Quick Setup:

1. Connect the RC1180-MBUS Demo Board to an available COM port
2. Read back configuration settings from the Demo Board
3. Change settings and update the connected Demo Board if needed.

For detailed configuration it is adviced to use the more powerful MBUS-CCT tool instead of the MBUS-DEMO software. You will then get access to all configuration parameter settings of your connected module.

MBUS Packet Generator Tab

The MBUS Packet Generator Tab allows you to set up one of the RC1180-MBUS modules as a meter that sends meter status on request or periodically. The UART package from the PC to the RC1180-MBUS is listed, and part of the message can be changes by the user. This package is received from the meter via the UART interface directly to the RC1180-MBUS as illustrated in the picture. The user entries for the MBUS Packet Generator window is illustrated in figure 6.

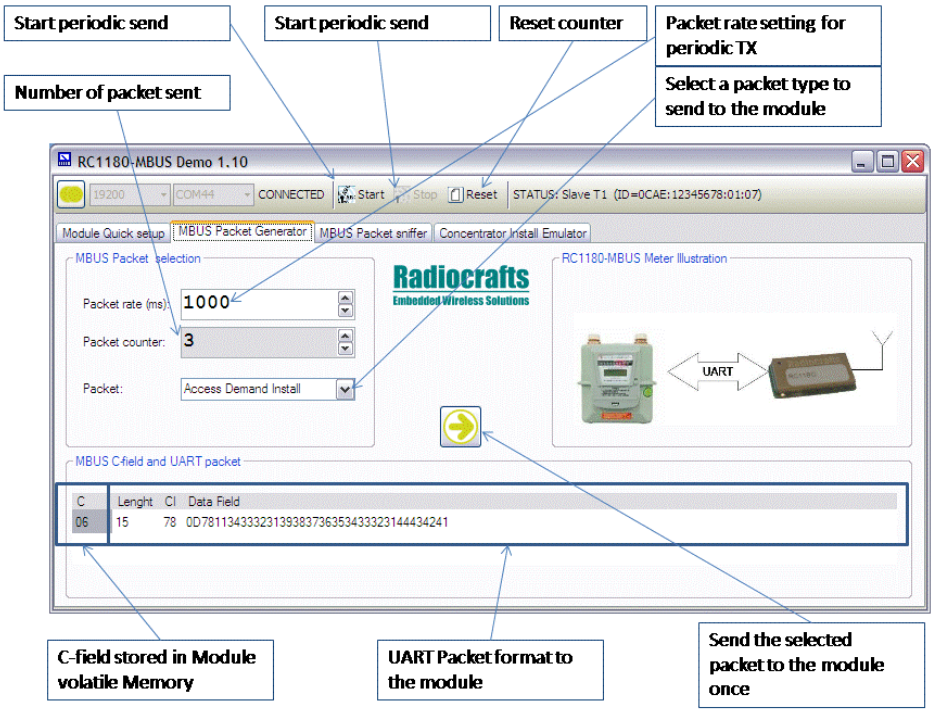

Figure 6. MBUS Packet Generator

Step-by-step guide for setting up the MBUS Packet Generator in periodic TX mode:

1. Configure the Demo Board as Slave in the Module Quick Setup tab
2. Select the MBUS Packet Generator tab
3. Set the Packet rate that gives the periodical interval in ms (optional)
4. Select a packet to transmit.
5. Change the packet payload if needed (optional)
6. Start the periodic transmit from the toolbar start button

The packet counter will now increment and send the UART packet periodically according to the Packet rate. The user can stop and reset the periodic transmission from the toolbar.

MBUS Packet Sniffer Tab

The MBUS Packet Sniffer tab allows you to set up one of the RC1180-MBUS modules as a Wireless M-Bus Collector. This board will act as a Wireless M-Bus packet sniffer, that receives and lists all incoming Wireless M-Bus packets for the selected MBUS mode. The user window for the MBUS Packet Sniffer is illustrated in figure 7.

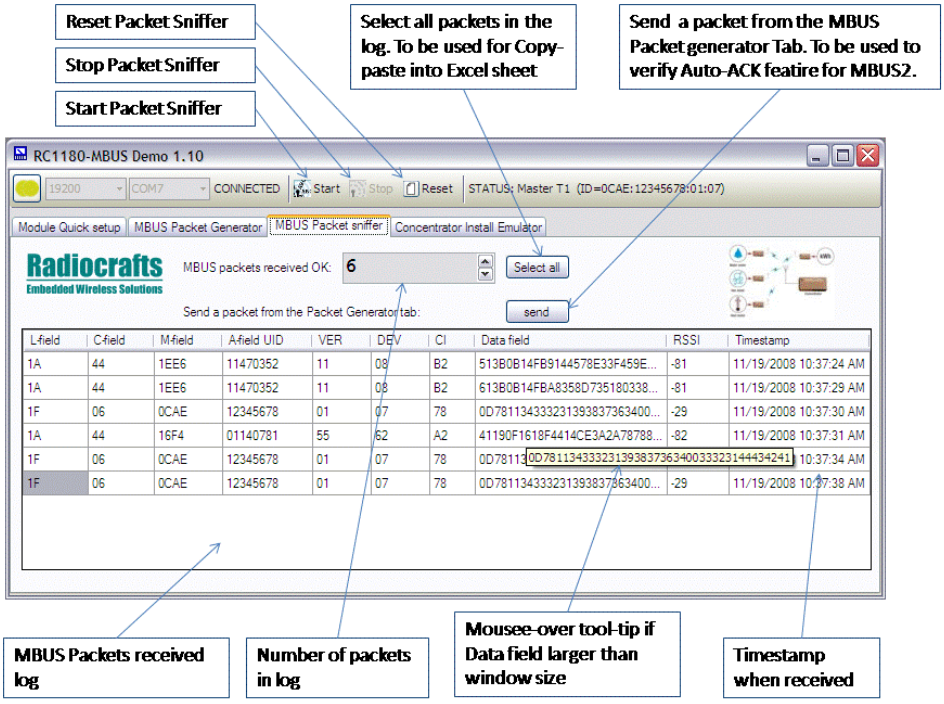

Figure 7. MBUS Packet Sniffer

Step-by-step guide for setting up the MBUS Packet Sniffer:

1. Configure the Demo Board as Master, enable accept all messages and include RSSI in the Module Quick Setup tab
2. Select the MBUS Packet Sniffer Tab
3. Start the MBUS Packet Sniffer from the toolbar start button

The MBUS Packet Sniffer will now count the total number of received MBUS packets and list them in the Meter Collector data field including RSSI and packet ID for each new packet. The meter collector will continue to search for MBUS packets until the Sniffer is stopped using the stop button on the toolbar. All collector data can be selected in order to copy-paste the information to an Excel spreadsheet for further analysis. The reset button will empty the logger and set the packet receive counter to zero.

Concentrator Install Emulator Tab

The Concentrator Install Emulator tab is a tool for installing and binding meters to the RC1180-MBUS module. The module will act as a Wireless M-Bus concentrator that only accepts installed meters. The user window for the Concentrator Install Emulator is illustrated in figure 8.

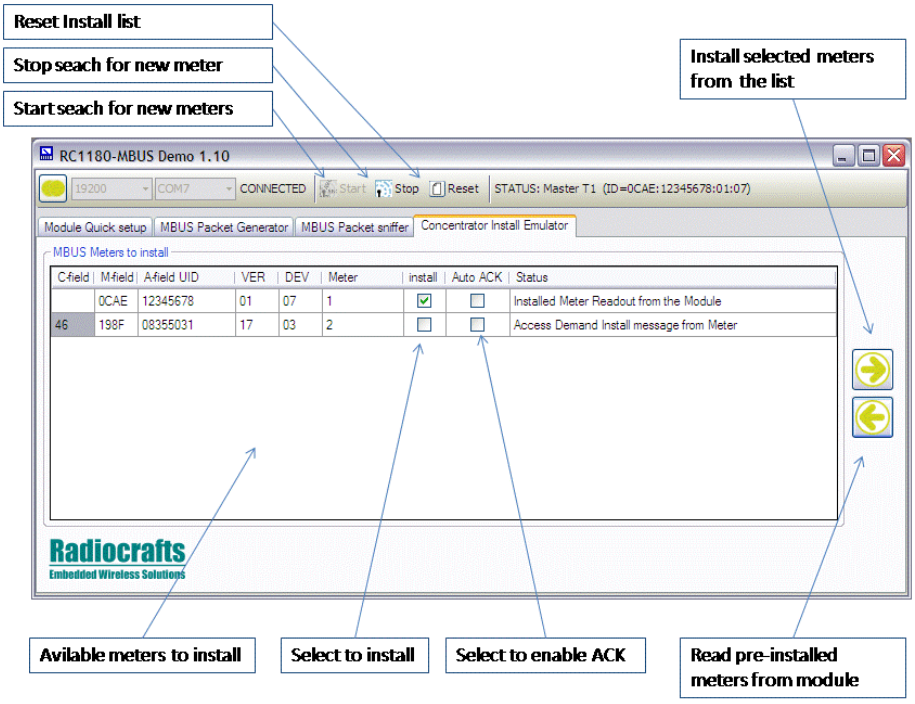

Figure 8. Concentrator Install Emulator

Step-by-step guide for installing a meter to the Concentrator (RC1180-MBUS Demo Boards):

1. Ensure that you have the MBUS2 feature set on the connected module.
2. Configure the Demo Board as Master, enable accept Install messages and include RSSI, in the Module Quick Setup tab.
3. Read pre-installed meters by pressing left-arrow key.
4. Start the search for new install messages pressing the toolbar start button.
5. Wait for the install message from a meter you want to install.
6. Select the meters you want to install, and choose ACK if it is a T2 meter.
7. Click on the right-arrow button to install the selected meter.
8. You can now change mode to normal mode and use the packet sniffer to receive messages from installed meters only.

The Install Emulator will only list up new meters even if they send several packets. This will simplify the meter selection and easily inform about available meters to install.

Document Revision History

Document Revision	Changes
1.0	New Revision
1.1	Upgraded with MBUS2 feature set functions (MBUS-DEMO rev 1.10)

Disclaimer

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